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NOTE

The Prewarrant Use of Thermal Imagery: Has This Technological Advance in the War Against Drugs Come at the Expense of Fourth Amendment Protections Against Unreasonable Searches?

INTRODUCTION

To say that the manufacture, production and distribution of marijuana has become a problem in the United States would understate and belittle the significance of the issue. According to the United States Department of Justice, marijuana is the "most used/abused illegal drug in the United States."¹ The Department of Justice estimates there are approximately twelve million marijuana users in the country.² Consequently, the United States Department of Justice's Drug Enforcement Administration ("DEA") allocates a significant amount of staff and money to the discovery and destruction of marijuana growing operations throughout the country.³

The DEA estimates that growers raise 5200 metric tons of marijuana in the United States annually, on both private and public lands.⁴ The profile of growers has changed dramatically over the years, making them more difficult to find now than twenty to twenty-five years ago; the easily identified flower children of the 1960s have changed to otherwise law-abiding citizens and business people.⁵ To make matters worse, growers now have the technology to increase the potency of their

¹ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., DOMESTIC MARIJUANA ERADICATION: A SUCCESS STORY 1 (1992).

² *Id.*

³ Eric Schlosser, *Reefer Madness*, S.F. CHRON., Aug. 28, 1994, at Z1.

⁴ Richard Lipkin, *Kentucky's Other Grass*, INSIGHT, July 1, 1991, at 12.

⁵ Individuals prosecuted for marijuana farming include law enforcement officers, judges, poor struggling families, and schoolteachers. *Id.* at 13, 16.

marijuana plants up to ten times that of the plants grown only twenty years ago.⁶ All of these factors combine to make marijuana eradication a high priority for the DEA.⁷

During the late 1980s and early 1990s, there was a nationwide law enforcement crackdown on domestic growing operations.⁸ The number of plants eradicated grew from 129.7 million in 1986 to 272 million in 1992.⁹ Obviously, the aggressive efforts of the DEA have been increasingly successful. However, efforts by marijuana growers to remain undetected have also increased and these growers are now moving indoors and underground to produce their crops.¹⁰

Increases in the number discovered by the DEA suggests that the number of indoor operations is growing. In 1986, the DEA seized 1077 indoor growing operations; by 1992, the number of indoor operations seized had grown to 3849.¹¹ Indoor operations present new and compounded problems for law enforcement officers.¹² While the crop sizes are smaller, indoor operations can produce up to "four full growing cycles per year."¹³ The indoor growers are well-organized, efficient, and often well-equipped "with the latest computerized irrigation systems, hydroponic basins,¹⁴ heating systems, growing lamps," and other devices to create a perfect growing environment for marijuana.¹⁵ Not only are the growing operations technically complex, they are often located in creative sites which are difficult to uncover.¹⁶

⁶ "Seeds are specially crossbred, plants are cloned and genetically engineered by high tech growers eager to push the potency levels to new highs." *Id.* at 13; see also U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 1, at 1 (stating that marijuana is more potent than it was twenty years ago).

⁷ Lipkin, *supra* note 4, at 16.

⁸ Schlosser, *supra* note 3, at Z1.

⁹ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 1, at 3.

¹⁰ *Id.* at 8.

¹¹ *Id.* at 4; U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., DOMESTIC CANNABIS ERADICATION/SUPPRESSION PROGRAM 27 (1992). The 1992 figure was an increase of 35% over the 1991 figure alone. According to some sources, the total number of indoor operations doubles every year. Lipkin, *supra* note 4, at 16.

¹² Lipkin, *supra* note 4, at 16.

¹³ Conventional outdoor methods, in contrast, produce only one full cycle per year. U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 1, at 3.

¹⁴ Indoor hydroponic growing does not require soil; the marijuana's root system is supported by lava rocks or other porous material and water delivers "necessary life supporting nutrients." *Id.*

¹⁵ Lipkin, *supra* note 4, at 18.

¹⁶ Indoor growing operations have been discovered in residential homes, barns, airplane hangers, beneath phony tennis courts, and in bunkers underneath an electrical

Law enforcement officials have had to develop "innovative investigation techniques" such as Operation Green Merchant to combat the sophistication of indoor growers.¹⁷ In addition, the DEA also employs its own technologically advanced surveillance equipment to detect these operations.¹⁸ Indoor growing operations are dependent upon high intensity grow lamps for crop production.¹⁹ These lamps, which can produce temperatures of up to 150° Fahrenheit, must be vented by the indoor grower as the optimum temperature for growing marijuana is between 60° and 70° Fahrenheit.²⁰ Law enforcement agencies use thermal imagery scanning to detect the emissions from structures suspected of housing indoor marijuana-growing operations.²¹ The information given by a thermal scan often supplements the probable cause necessary to obtain a search warrant and contributes to the discovery and eradication of indoor operations.²²

This introduction provides a *brief* summary of the magnitude of the marijuana production problem in this country. While important for law enforcement officials to correct the problem, the methods employed in the eradication process must not interfere with protections afforded by the United States Constitution. Specifically, the prewarrant use of thermal imaging devices violates the Fourth Amendment protections against unreasonable searches. This Note discusses the concerns surrounding the

power generating station. *Id.* at 18, 19. In Kentucky, a subterranean greenhouse was discovered in rural Clinton County under a one hundred and fifty acre farm. The operation had over five thousand square feet of growing space, sixty grow lamps, a water system and storage tanks, and a ventilation system which used an above ground outhouse to vent the heat from the operation. Gail Gibson, *Marijuana Mansion*, LEXINGTON HERALD-LEADER, Feb. 20, 1994, at B1, B3.

¹⁷ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 1, at 7. Operation Green Merchant is a special program of the DEA which focuses on domestic indoor growing operations. It targets the "indoor cannabis [marijuana] cultivation industry" by gathering information on foreign cannabis seed suppliers, hydroponic companies, and advertisers of marijuana seeds and growing equipment/supplies. *Id.*

¹⁸ For a description of how the DEA typically utilizes thermal imaging devices see *United States v. Ishmael*, 48 F.3d 850, 850-51 (5th Cir. 1995).

¹⁹ Lipkin, *supra* note 4, at 17.

²⁰ Lynne M. Pochurek, Note, *From the Battlefield to the Homefront: Infrared Surveillance and the War on Drugs Place Privacy Under Seige*, 7 ST. THOMAS L. REV. 137, 167 n.99 (1994).

²¹ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., CANNABIS DETECTION/ERADICATION SCHOOL 11 (1991) (training manual for DEA agents).

²² *United States v. Ishmael*, 48 F.3d 850, 857 (5th Cir. 1995) (allowing thermal scan information to supplement information from defendant's utility bills to establish probable cause).

use of imaging devices. Part I provides an outline of the protections under the Fourth Amendment.²³ Part II explains thermal imaging technology.²⁴ Part III presents the prosecution and defense arguments and an analysis of the courts' treatment of the issues involved.²⁵ This Note concludes with the suggestion that some standard of review be required before allowing the use of thermal imagers; however, that standard should be less than the probable cause standard required for a warrant.²⁶

I. FOURTH AMENDMENT PROTECTIONS

The Fourth Amendment of the United States Constitution protects citizens from unreasonable invasions of their privacy by the government providing:

[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the things to be seized.²⁷

The courts presume a warrantless search or seizure to be unreasonable unless law enforcement officers can demonstrate otherwise.²⁸ Designed to protect citizens from unreasonable, general searches, the Fourth Amendment requires law enforcement officers to seek a warrant from a neutral and detached magistrate in order to conduct a search.²⁹ A neutral and detached magistrate reviews the affidavit and application for the search warrant and determines whether probable cause exists.³⁰ The sanction for failure to follow these Fourth Amendment requirements is the exclusion of any evidence seized as a result of such violation.³¹

²³ See *infra* notes 27-41 and accompanying text.

²⁴ See *infra* notes 42-72 and accompanying text.

²⁵ See *infra* notes 73-164 and accompanying text.

²⁶ See *infra* notes 165-82 and accompanying text.

²⁷ U.S. CONST. amend. IV.

²⁸ *United States v. Massachusetts*, 468 U.S. 897, 960 (1984) (holding that the Fourth Amendment does not bar introduction into evidence of illegally seized material when officers demonstrate their reasonable reliance on the validity of search warrant).

²⁹ *Johnson v. United States*, 333 U.S. 10, 14 (1948) (holding recognition of opium odor sufficient to justify a search warrant).

³⁰ *Id.*

³¹ *E.g.*, *Mapp v. Ohio*, 367 U.S. 643, 655 (1961) (holding that evidence obtained during searches and seizures in violation of the Fourth Amendment is inadmissible in state

Traditionally, the courts applied the protections of the Fourth Amendment to places or areas.³² This view changed with the Supreme Court's decision in *Katz v. United States*, where the Court specifically stated that "the Fourth Amendment protects people, not places."³³ In *Katz*, the Court held that electronic surveillance of a public telephone booth was unconstitutional under the Fourth Amendment where it was performed without a search warrant.³⁴ Even though a telephone booth is considered a public place, it ceases to be accessible to the public when a person enters it and shuts the door.³⁵ The Court held that electronic surveillance "seized" the occupant's conversation and that such seizure invokes the protection of the Fourth Amendment.³⁶ Without a seizure or search, there would be no Fourth Amendment issue.³⁷

The concurrence in *Katz* articulated a two-part test for determining if the Fourth Amendment applies to a particular situation.³⁸ First, did the defendant exhibit an actual expectation of privacy?³⁹ If she did, then the court must determine if such expectation is "one that society is prepared to recognize as 'reasonable.'"⁴⁰ Commonly referred to as the "reasonable expectation of privacy test," this two-part analysis has been used by numerous courts since *Katz*.⁴¹

court as it is in federal court).

³² See, e.g., *Olmstead v. United States*, 277 U.S. 438, 459 (1928) (finding wiretapping does not violate the Fourth Amendment because it is meant to protect "material" things, such as places or areas, and wiretapping involves the sense of hearing which is not a material thing) (citing *Boyd v. United States*, 116 U.S. 616, 621 (1886)).

³³ 389 U.S. 347, 351 (1967).

³⁴ The *Katz* Court adopted the view that bypassing the advance authorization of a magistrate ignored the "safeguards provided by an objective predetermination of probable cause" and led to constitutional protections "only in the discretion of the police." *Id.* at 358, 359 (citing *Beck v. Ohio*, 379 U.S. 89, 96, 97 (1964)).

³⁵ At this point, the telephone booth temporarily becomes a private place and the occupant is entitled to be secure in the fact that his conversation is not being intercepted. *Id.* at 352, 353.

³⁶ *Id.* at 353.

³⁷ *Id.*

³⁸ *Id.* at 361 (Harlan, J., concurring).

³⁹ *Id.* (Harlan, J., concurring).

⁴⁰ *Id.* (Harlan, J., concurring).

⁴¹ E.g., *United States v. Ford*, 34 F.3d 992, 995 (11th Cir. 1994) (holding that defendant did not have a subjective expectation of privacy in heat vented from his mobile home and that any expectation defendant may have had was unreasonable); *United States v. Broadhurst*, 805 F.2d 849, 853 (9th Cir. 1986) (holding that aerial surveillance of greenhouse did not amount to a "search" under the Fourth Amendment); *Jabara v. Webster*, 691 F.2d 272, 278 (6th Cir. 1982) (holding that plaintiff's Fourth Amendment rights were not violated when summaries of his overseas telegraphic messages were

Any use of thermal imaging devices to detect indoor marijuana growing operations must comport with the Fourth Amendment requirements outlined above in order to be valid under search and seizure law. The problem with law enforcement's current use of thermal imaging devices is that they are typically used prior to the issuance of a warrant. Such prewarrant use immediately raises questions regarding Fourth Amendment compliance.

II. THERMAL IMAGING TECHNOLOGY

A. *How Does It Work?*

Thermal imaging devices "see" heat.⁴² The devices have optical electronic sensors which sample the thermodynamic characteristics (i.e., heat flow characteristics) of the object upon which the imaging device is focused.⁴³ Heat temperature is detected with sensors that scan the infrared wavelength portion of the electromagnetic spectrum.⁴⁴ This spectrum contains many different types of energy fields, each with its own frequency of occurrence.⁴⁵ The entire frequency range varies from a few occurrences per second, to millions upon millions of occurrences per second.⁴⁶ For example, visible light occurs one hundred million times per second and is visible because of its high rate of occurrence.⁴⁷ Conversely, electrical energy is generated to occur sixty times per second and is not visible due to its low rate of occurrence.⁴⁸ The infrared section of the electromagnetic spectrum is also not visible to the human eye due to the fact that infrared energy occurs at a rate one thousand times slower than visible light.⁴⁹ The thermal energy (heat) within the infrared spectrum can only be detected with the help of nonnatural, sense

turned over to the FBI by the National Security Agency), *cert. denied*, 464 U.S. 863 (1983); *United States v. Parks*, 684 F.2d 1078, 1082 n.5 (5th Cir. 1982) (holding that defendant's Fourth Amendment rights were not violated by the government's use of an electronic transponder, which can intercept and decode messages sent over radio waves, in an airplane).

⁴² U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 21, at 8.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

enhancing electronic sensors or "special film emulsions."⁵⁰ Thermal imaging devices use these electronic sensors to identify thermal energy.⁵¹ The optical sensors convert the sampled thermal data into digital information that is stored in the device's computer memory.⁵² The computer then feeds the digitally stored information to a variety of displays including a camera, video cassette recorder and real-time video screen where it is converted into analog or picture form and viewed by the user.⁵³

The thermal imaging device does not transmit rays or pulses which can penetrate (or see through) objects such as houses or barns.⁵⁴ Rather, thermal energy is radiated from within the targeted objects and passively scanned by the thermal imaging device.⁵⁵ The thermal imaging device can scan the outermost envelope (i.e., edge) in a three dimensional configuration.⁵⁶

Types of thermal imaging devices vary in sophistication. Handheld noncontact thermometers are the least sophisticated of the devices. They simply display the temperature of the scanned objects.⁵⁷ These devices must be operated at close range and do not indicate which "part of the target" the device is scanning since there is no physical contact between the temperature probe and the object and because there is no image display.⁵⁸ In practice, users typically scan in several directions around the object in order to obtain the most accurate reading.⁵⁹

Handheld imaging systems are mid-level in sophistication.⁶⁰ These systems can take snapshots or videotape recordings of the images

⁵⁰ Thermal energy works on a radiated heat basis rather than a convected heat basis. A thermal energy source radiates heat energy until it strikes another object. Upon striking another object, the energy is partially reflected, partially absorbed and partially transmitted. A thermal imaging device detects the transmission and absorption. *Id.*

⁵¹ By way of contrast, a camera uses the visible light portion of the electromagnetic spectrum. It captures the visible light in its view and freezes it into a picture. *Id.*

⁵² *Id.* at 18.

⁵³ The picture is seen in black and white contrast (including shades of gray). The brighter an image, the hotter it is or the more thermal energy it is transmitting. *Id.* at 8.

⁵⁴ *Id.* at 11.

⁵⁵ Thermal imaging devices sense only heat that is radiated "from the outside surface of an object." Such heat may be "internal heat which is transmitted to the outside surface of a object." *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.* at 18.

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

scanned.⁶¹ Monochrome — black and white — displays are typically used. The image shows the hottest objects in white; as the temperature lessens the shade darkens. The coldest objects are black.⁶² Some device manufacturers emphasize the product's high picture resolution even over very long distances and its ability to "pan a wide surveillance area . . . then switch to the narrow field of view" very quickly.⁶³

The most sophisticated systems are High Performance Imaging Systems.⁶⁴ These devices boast more powerful computer processing, software-oriented interfacing, dual-field of view lenses and even higher image resolution capabilities, often through the use of "computerized enhancement techniques."⁶⁵ Computerized enhancement allows the user to obtain a clear and informative image. These devices can be programmed to detect and display "out of spec"⁶⁶ situations such as those involving images with thermal properties higher than typically encountered.⁶⁷ Additionally, these devices are compact and reliable making them suitable for aircraft use, such as mounted under helicopters for aerial surveillance.⁶⁸

B. *How Are They Used?*

This Note focuses on the use of thermal imaging devices in the detection of indoor marijuana growing operations. These devices have other drug-related uses such as the detection of indoor methamphetamine laboratories.⁶⁹ They also have a number of non-drug related uses.⁷⁰ "The United States Army first developed the thermal imager to locate enemy vehicles during combat."⁷¹ Search and rescue operations, border

⁶¹ *Id.* at 19.

⁶² *Id.*

⁶³ The Thermovision 1000 Forward Looking Infrared System is advertised to be able to "detect a human being in water at 1 km or on land at 3 km." It can also go from wide surveillance to narrow in one-half second without need for focus or contrast adjustment. AGEMA INFRARED SYSTEMS, THERMOVISION 1000 FORWARD LOOKING INFRARED SYSTEM (company sales brochure).

⁶⁴ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 21, at 19.

⁶⁵ *Id.*

⁶⁶ AGEMA INFRARED SYSTEMS, THERMOVISION 1000, *supra* note 63.

⁶⁷ U.S. DEP'T OF JUSTICE DRUG ENFORCEMENT ADMIN., *supra* note 21, at 19.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Infra* note 72.

⁷¹ Melinda Foster, Note, *State v. Young: A Cool View Toward Infrared Thermal-Detection Devices*, 30 GONZ. L. REV. 135, 136 n.7 (1994-95).

patrols for illegal aliens, utility company energy audits (to detect poorly insulated areas), and forest fire hot spot location are other instances where thermal imaging devices are used.⁷² While not all inclusive, this listing highlights the fact that thermal imaging devices have legitimate non-law enforcement uses.

III. ARGUMENTS REGARDING USE OF THERMAL IMAGING DEVICES

Courts, in the federal and state systems, have held both for and against the constitutionality of the warrantless use of thermal imaging devices.⁷³ The primary use of the device is to detect abnormal amounts of radiated heat to help bolster a probable cause determination. In turn, a warrant may be acquired to search a suspected indoor marijuana growing site. The principal point of contention is whether conducting a thermal imaging scan of a person's property constitutes a search within the meaning of the Fourth Amendment. If it does, then the Fourth Amendment will require a warrant prior to the use of the thermal imaging device. If such warrant were not obtained, the evidence acquired from a search of the scanned property will be suppressed at trial.⁷⁴ If the court

⁷² *Id.* at app.; see also *United States v. Penny-Feeney*, 773 F. Supp. 220, 223 n.4 (D. Haw. 1991) (listing uses of the thermal imaging devices other than for the detection of indoor marijuana growing operations), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

⁷³ See *United States v. Pinson*, 24 F.3d 1056, 1059 (8th Cir.) (holding that warrantless use of thermal imaging devices does not violate the Fourth Amendment), *cert. denied*, 63 U.S.L.W. 3460 (U.S. Dec. 12, 1994) (No. 94-402); *United States v. Field*, 855 F. Supp. 1518, 1519 (W.D. Wis. 1994) (holding that use of thermal imaging device is a search within the Fourth Amendment and requires a warrant); *State v. Young*, 867 P.2d 593, 599 (Wash. 1994) (warrantless use of thermal imaging device violates the state constitution and the U.S. Constitution).

⁷⁴ The mechanism used by the courts to ensure that law enforcement officials conduct only reasonable searches and seizures is the exclusionary rule. See Deborah Connor, *The Exclusionary Rule*, 82 GEO. L.J. 755, 755 (1994). Under the exclusionary rule, any evidence obtained via an unreasonable search or seizure is inadmissible in court. *Id.*

To invoke the exclusionary rule, the defense files a motion to suppress and the judge holds a hearing on the matter. See *United States v. Williams*, 622 F.2d 830, 835 (5th Cir. 1980) (in which defendant moved to suppress heroin seized from her luggage), *cert. denied*, 449 U.S. 1127 (1981). If the search or seizure was performed without a warrant, the burden will be on the prosecution to show why the conduct did not constitute a "search" or that the search fits within an exception to the warrant requirement (e.g., good faith exception). *United States v. Leon*, 468 U.S. 897, 914 (1984) (holding that the exclusionary rule does not apply when police act reasonably in reliance on the validity of a search warrant). If the prosecution's burden is not met, the evidence will not be permitted at trial. *United States v. Ishmael*, 48 F.3d 850, 852 (5th Cir. 1995) (holding

determines that the warrantless use of a thermal imaging device does not constitute a search, then evidence obtained in a subsequent search is admissible at trial for consideration by the judge or jury.⁷⁵

Arguments exist both for and against characterizing the use of thermal imaging devices as a legitimate way to establish probable cause. While it is important not to tie the hands of law enforcement officers in their fight against crime, it is also important to consider the rights of citizens granted by the United States Constitution.

A. The Prosecution's Argument: Warrantless Use of a Thermal Imaging Device is Not a Search Under the Fourth Amendment

When conflict regarding the use of thermal imaging devices arises, the initial burden is on the defendant to demonstrate that he had a "reasonable expectation of privacy."⁷⁶ This is the test followed by the Supreme Court since its decision in *Katz v. United States*.⁷⁷ As noted in the Fourth Amendment discussion,⁷⁸ this is a two-part test requiring that there be an actual (subjective) expectation of privacy and that the expectation is reasonably (objectively) one which society is prepared to acknowledge.⁷⁹

Showing that the defendant did not possess an expectation of privacy is the more difficult of the two arguments for the prosecution as it is difficult to prove what a person subjectively believes.

A thermal imaging device scans heat emissions from a structure. Consequently, the prosecution must argue that the defendant had no expectation of privacy in the heat being emitted from a structure they

that a warrantless use of a thermal imaging device does not violate the Fourth Amendment).

The exclusionary rule is used as a remedial device. *United States v. Tejada*, 956 F.2d 1256, 1261 (2d Cir.) (holding that illegally seized but relevant evidence may be considered at sentencing), *cert. denied*, 113 S. Ct. 124 (1992). Its purpose is to deter unlawful/unreasonable searches and seizures. *Mapp v. Ohio*, 367 U.S. at 643, 647 (1961).

In cases involving the warrantless use of thermal imaging devices, the defendant is typically contesting the allowance of such evidence at the trial level by making a motion to suppress the evidence. Connor, *supra*, at 755.

⁷⁵ *Ishmael*, 48 F.3d at 852.

⁷⁶ See *United States v. Ishmael*, 843 F. Supp. 205, 209 (E.D. Tex. 1994) (holding that the use of a thermal imaging device constituted a search that did not fall within an exception to the warrant requirement), *rev'd*, 48 F.3d 850 (5th Cir. 1995).

⁷⁷ *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

⁷⁸ See *supra* notes 38-41 and accompanying text.

⁷⁹ *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

owned.⁸⁰ The prosecution will specifically focus on whether or not the heat is vented.⁸¹ If the heat is vented intentionally, the prosecution argues that defendant knowingly exposed something private to the public. By doing so, the defendant forfeits her right to privacy in the object and thereby loses Fourth Amendment protection of the object.⁸² If the heat has not been intentionally vented by the defendant, the prosecution will still argue that there was no subjective expectation of privacy. They will assert that, by its very nature, "heat is known to dissipate,"⁸³ as opposed to remaining in one place; therefore, a defendant cannot have a subjective expectation of privacy in heat which she should know will be exposed to the public.

The prosecution's efforts focus on showing that *any* expectation of privacy the defendant *may* have is not reasonable and is not one society is willing to recognize. One significant argument classifies heat emissions as "heat waste" or "abandoned heat"⁸⁴ and draws an analogy to the Supreme Court's previous holdings regarding garbage.⁸⁵ The heat produced from indoor marijuana growth has been called "a waste byproduct"⁸⁶ in an effort to draw similarities to garbage. It is well established that there is no reasonable expectation of privacy in garbage that has been set out on a curb for collection.⁸⁷ "Just as an individual lacks a reasonable expectation of privacy in a sealed garbage bag sitting

⁸⁰ *E.g.*, *United States v. Ford*, 34 F.3d 992, 995 (11th Cir. 1994) (holding that defendant did not have a subjective expectation of privacy in heat vented from his mobile home).

⁸¹ *Id.*; *United States v. Domitrovich*, 852 F. Supp. 1460, 1473 (E.D. Wash. 1994) (holding that defendant had no reasonable expectation of privacy in heat vented from a lean-to in which a marijuana-growing operation existed); *United States v. Porco*, 842 F. Supp. 1393, 1397 (D. Wyo. 1994) (holding that defendant had no legitimate expectation of privacy in heat vented from his home nor in utility company records of his electrical usage).

⁸² "What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection." *Katz*, 389 U.S. at 351.

⁸³ *Domitrovich*, 852 F. Supp. at 1474.

⁸⁴ *United States v. Penny-Feeney*, 773 F. Supp. 220, 225 (D. Haw. 1991) (holding that the use of infrared devices in navigable airspace above defendant's residence for purposes of detecting "waste heat" was not a search under the Fourth Amendment), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

⁸⁵ *Id.*; *see California v. Greenwood*, 486 U.S. 35, 40 (1988) (holding that garbage intentionally left at curb by defendant constituted an abandonment thus is open to public inspection).

⁸⁶ *United States v. Ford*, 34 F.3d 992, 997 (11th Cir. 1994) (holding that defendant did not have an objectively reasonable, subjective expectation of privacy in heat vented from his mobile home).

⁸⁷ *Greenwood*, 486 U.S. at 40.

beside the street . . . so too, he lacks a reasonable expectation of privacy in heat emissions."⁸⁸ In other words, an expectation of privacy in one's heat emissions is not one society is prepared to acknowledge.

Another argument offered by the prosecution is that heat emission is like odor emission.⁸⁹ The Supreme Court has held that warrantless surveillance of odors, in the form of a drug-sniffing dog, is not a search under the Fourth Amendment.⁹⁰ "Just as odor escapes a compartment or building and is detected by the sense-enhancing instrument of a canine sniff, so also does heat escape a home and is detected by the sense-enhancing infrared camera."⁹¹ The argument again is that any subjective expectation of privacy is not one society is reasonably prepared to accept.

In defending the warrantless use of thermal imaging devices, the prosecution will also argue that the surveillance is not unduly invasive,⁹² but, rather a "passive" instrument.⁹³ The prosecution will emphasize that a thermal imager can only "see" the exterior surface of an object it scans, not the interior.⁹⁴ Additionally, the information disclosed is not that which forms the basis for the need of Fourth Amendment protection.⁹⁵ The prosecution will also point out that the court must focus on what information was *actually* obtained from the use of the thermal imaging device, not what *may* have been obtained.⁹⁶ Information from the

⁸⁸ *United States v. Domitrovich*, 852 F. Supp. 1460, 1474 (E.D. Wash. 1994) (citations omitted).

⁸⁹ *E.g.*, *United States v. Pinson*, 24 F.3d 1056, 1058 (8th Cir.) (holding escaping heat analogous to escaping odors for Fourth Amendment purposes), *cert. denied*, 63 U.S.L.W. 3460 (U.S. Dec. 12, 1994) (No. 94-402).

⁹⁰ *E.g.*, *United States v. Place*, 462 U.S. 696, 707 (1983) (holding that exposure of luggage to a trained narcotics detection dog is not a search for Fourth Amendment purposes); *Pinson*, 24 F.3d at 1058.

⁹¹ *Pinson*, 24 F.3d at 1058.

⁹² *Id.* at 1059; *Domitrovich*, 852 F. Supp. at 1474; *United States v. Penny-Feeney*, 773 F. Supp. 220, 228 (D. Haw. 1991), *aff'd*, 984 F.2d 1053 (9th Cir. 1993); *State v. McKee*, 510 N.W.2d 807, 810 (Wis. Ct. App. 1993) (holding that the use of infrared devices to detect heat escaping defendant's home was not a search for Fourth Amendment purposes), *review denied*, 515 N.W.2d 715 (Wis. 1994).

⁹³ *E.g.*, *Penny-Feeney*, 773 F. Supp. at 228. In other words, since the thermal imaging device does not send rays out into an object scanned, it passively receives information being emitted from an object. *See supra* note 55 and accompanying text.

⁹⁴ *E.g.*, *Penny-Feeney*, 773 F. Supp. at 228.

⁹⁵ "[I]ntimacy, personal autonomy, and privacy" are the interests requiring Fourth Amendment protection and these items are undisturbed by a thermal scan. *Pinson*, 24 F.3d at 1059; *see also* *United States v. Ford*, 34 F.3d 992, 997 (11th Cir. 1994) (adopting the language in *Pinson*); *Domitrovich*, 852 F. Supp. at 1475 (stating that information disclosed was "neither sensitive nor personal").

⁹⁶ *Domitrovich*, 852 F. Supp. at 1473; *see also* *Dow Chemical Co. v. United States*,

thermal imaging device alone will not tell what is going on inside the structure; other evidence such as excessive utility consumption will be necessary to get a more clear idea of what occurs within the walls of a structure.⁹⁷ The prosecution hopes that these factors combine to establish that prewarrant use of thermal imaging devices is not an unreasonable invasion of privacy.

Further arguments supporting the prosecution's position include reference to the use of utility company records in the investigation of a suspect.⁹⁸ The Fourth Amendment does not require law enforcement officials to obtain a warrant prior to requesting utility company records of a suspect's property, so they logically should not be required to obtain a warrant prior to using a thermal imaging device.⁹⁹ Additionally, the uses of thermal imaging devices are not limited to the area of law enforcement.¹⁰⁰ Since use of thermal imaging devices has become so prevalent, it is harder for defendants to show that their expectations of privacy from such devices is reasonable.

Many courts have been persuaded by these arguments and have allowed evidence seized from a warrant based on the use of thermal imaging devices to be used at trial.¹⁰¹

B. Argument of the Defense: Warrantless Use of a Thermal Imaging Device Constitutes an Unlawful Search Under the Fourth Amendment

The defense has the burden of demonstrating both that the defendant had a subjective expectation of privacy *and* that it is objectively one which society is prepared to acknowledge.¹⁰² To establish the existence of a subjective expectation of privacy, the defense focuses on the nature of heat. The dissipating nature of heat means that it automatically

476 U.S. 227, 238 (1986) (holding aerial photographs did not violate Fourth Amendment, in part because they did not disclose "intimate details").

⁹⁷ *United States v. Ishmael*, 48 F.3d 850, 857 (5th Cir. 1995) (holding that phone records and excessive utility bills also contributed to probable cause determination).

⁹⁸ *E.g.*, *United States v. Porco*, 842 F. Supp. 1393, 1397 (D. Wyo. 1994) (holding that defendant had no legitimate expectation of privacy in heat vented from his home nor in utility company records of his electric usage).

⁹⁹ *Domitrovich*, 852 F. Supp. at 1475 n.3.

¹⁰⁰ See *supra* note 72 and accompanying text.

¹⁰¹ See *infra* notes 132-34, 137-39, 159-64 and accompanying text.

¹⁰² *Katz v. United States*, 389 U.S. 347, 361 (Harlan, J., concurring) (establishing the two-part requirement).

escapes, whether or not vented.¹⁰³ This being the case, the loss of heat "occurs, for the most part, without any conscious decision" by the property owner.¹⁰⁴ It follows then, that what is relinquished unconsciously does not cause forfeiture of an actual expectation of privacy.¹⁰⁵ The defense extends this argument to show the privacy expectation is reasonable by stating that "it's illogical to conclude that any homeowner gives the same thought to the escape of heat . . . as he or she does to the removal of garbage."¹⁰⁶ Taking out the garbage is an affirmative, conscious act to abandon the contents of the trash.¹⁰⁷ The defense dispels the analogy of heat waste to garbage by pointing out that, while it is "common knowledge" that there is no reasonable expectation of privacy in garbage left for collection,¹⁰⁸ it is not commonly known that law enforcement officials "cruise the public streets after dark scanning houses with thermal imagers."¹⁰⁹ Through these arguments the defense hopes to establish a two-fold result: not only that there is a subjective expectation of privacy, but also that the expectation is reasonable (i.e., one that society is willing to accept).

The second part of the *Katz* reasonable expectation of privacy test is the more difficult argument for the defense. They have to be able to show the "reasonableness" of defendants' privacy expectation in emitted heat.¹¹⁰ In addition to the above argument against the "garbage" analogy, the defense also quickly distinguishes the canine sniff analogy. The most notable distinction between a dog sniff and the use of a thermal imaging device is that such canine surveillance takes place on public property while a thermal scan focuses on private property, often times on

¹⁰³ *United States v. Field*, 855 F. Supp. 1518, 1532 (W.D. Wis. 1994) (distinguishing heat loss, which is unconscious, from abandoning garbage, which is an affirmative decision).

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*; see *State v. Young*, 867 P.2d 593, 603 (Wash. 1994) (noting that placing garbage at the curb assumes the risk that people or animals may seize garbage).

¹⁰⁸ *California v. Greenwood*, 486 U.S. 35, 40 (1988) (explaining that garbage left on a curb for collection is "readily accessible to animals, scavengers, snoops, children and other members of the public").

¹⁰⁹ *United States v. Field*, 855 F. Supp. 1518, 1532 (W.D. Wis. 1994) (distinguishing heat loss, which is unconscious, from abandoning garbage, which is an affirmative decision).

¹¹⁰ See *United States v. Ishmael*, 843 F. Supp. 205, 213 (E.D. Tex. 1994) (holding that the government failed to establish that thermal imaging devices were excepted from the Fourth Amendment's warrant requirement), *rev'd*, 48 F.3d 850 (5th Cir. 1995); *Young*, 867 P.2d at 603.

the defendant's home.¹¹¹ Further, canines are trained to detect illegal contraband. A thermal imaging device cannot distinguish between legal and illegal heat.¹¹² The defense will assert that these two factors distinguish thermal imaging devices from the "dog sniff" analogy and provide support for the reasonableness of defendant's privacy expectation.

Additionally, the defense argues that a thermal imaging scan is unduly invasive. The defense maintains that characterizing a thermal imaging device as a "passive"¹¹³ instrument is a "red herring."¹¹⁴ Other forms of surveillance can be described as passive. For example, high powered telescopes and nonconsensual wiretaps are passive instruments.¹¹⁵ However, these passive forms of surveillance either have been disallowed by the courts or require a court order for their use.¹¹⁶ That a device can be described as passive has no bearing on whether its use is reasonable.¹¹⁷

Similarly, the defense contests the prosecution's assertion that thermal imaging devices do not reveal activities within the property scanned.¹¹⁸ The only value of heat waste to the prosecution is "what it discloses about the interior" of a scanned object.¹¹⁹ In at least one case,¹²⁰ the prosecution stipulated to the fact that thermal imagers can detect a human form when it is leaning against glass or a "relatively thin barrier such as a plywood door."¹²¹ A thermal imaging device may not send out rays or beams, but it does disclose information about the activities occurring inside, and, as such, is highly invasive.¹²²

¹¹¹ See *Ishmael*, 843 F. Supp. at 213; *Young*, 867 P.2d at 603.

¹¹² *Ishmael*, 843 F. Supp. at 213.

¹¹³ *United States v. Penny-Feeney*, 773 F. Supp. 220, 228 (D. Haw. 1991) (describing the thermal imaging device as "a passive infrared instrument"), *aff'd*, 984 F.2d 1053 (9th Cir. 1993); see *supra* notes 92, 93 and accompanying text.

¹¹⁴ *United States v. Field*, 855 F. Supp. 1518, 1530 (W.D. Wis. 1994).

¹¹⁵ *Id.*

¹¹⁶ *Id.* (citing *United States v. Taborda*, 635 F.2d 131, 139 (2d Cir. 1980) (stating that a search may violate the Fourth Amendment despite being passive); 18 U.S.C. § 2510 *et seq.*).

¹¹⁷ See *Field*, 855 F. Supp. at 1531; accord *United States v. Ishmael*, 843 F. Supp. 205, 213 (E.D. Tex. 1994) (holding that the government failed to establish that thermal imaging devices were excepted from the Fourth Amendment's warrant requirement), *rev'd*, 48 F.3d 850 (5th Cir. 1995); *State v. Young*, 867 P.2d 593, 599 (Wash. 1994).

¹¹⁸ *Field*, 855 F. Supp. at 1530 (stating that a search may violate the Fourth Amendment despite being passive).

¹¹⁹ *Young*, 867 P.2d at 603.

¹²⁰ *Id.* at 593.

¹²¹ *Id.* at 595.

¹²² See *Field*, 855 F. Supp. at 1531; *Young*, 867 P.2d at 598, 603.

Also supporting the characterization of a thermal scan as invasive is the comparison of heat emitted from the inside of a structure to an electronic beeper emitting signals from within a structure. In *United States v. Karo*, the United States Supreme Court disallowed the monitoring of a signal from an electronic beeper planted on the defendant and unknowingly carried into his house.¹²³ Surveillance of the signal was considered an infringement on the suspect's expectation of privacy.¹²⁴ Scanning heat emitted from inside a structure follows the same premise. Thus, a thermal imaging device scan is "at least as intrusive as the beeper."¹²⁵ Since the scan is so invasive, the defense asserts that the expectation of privacy is reasonable for society to accept.

The defense points out the tension created between the right to privacy and "rapidly evolving technological sophistication."¹²⁶ The benefits to society of the right to privacy outweigh the benefits of technological advances and the courts should place a limit on the "use of technological weapons, even in the war on drugs."¹²⁷ Otherwise, the right to privacy "may be eroded without our awareness, much less our consent."¹²⁸ Allowing performance of "sense-enhanced observations" without the protections afforded by a warrant leaves law enforcement agents with a dangerous level of discretion.¹²⁹ The defense insists that these arguments support the reasonableness of an expectation of privacy in heat emitted from one's property and that the court should deem thermal scans "searches" within the meaning of the Fourth Amendment.

C. Results of the Arguments in the Court System

The issue of whether the warrantless use of thermal imaging devices constitutes a search within the meaning of the Fourth Amendment divides the courts. At the state court level, Washington stands sternly opposed to

¹²³ 468 U.S. 705, 715 (1984) (holding that monitoring a beeper in a private residence violates the Fourth Amendment).

¹²⁴ *Id.*

¹²⁵ *Young*, 867 P.2d at 602.

¹²⁶ *United States v. Ishmael*, 843 F. Supp. 205, 208 (E.D. Tex. 1994) (holding that the government failed to establish that thermal imaging devices were excepted from the Fourth Amendment's warrant requirement), *rev'd*, 48 F.3d 850 (5th Cir. 1995).

¹²⁷ *Id.* The Fifth Circuit disagreed with the District Court's acceptance of the technology argument stating that the *Ishmael*'s argument was "overstated" and that the device posed "no greater intrusion on one's privacy than a precise mapping camera, an electronic beeper, or a pen register." *Ishmael*, 48 F.3d at 856.

¹²⁸ *Young*, 867 P.2d at 598.

¹²⁹ *Id.* at 599.

the prewarrant use of thermal imaging devices.¹³⁰ Washington courts hold that such a search violates their state constitution's protection of a citizen's "private affairs" as well as the "reasonable search" protection under the Fourth Amendment.¹³¹ Conversely, the state courts in Arizona¹³² and Wisconsin¹³³ have held the warrantless use of thermal imaging devices is not a search under the Fourth Amendment and does not require a warrant.

The federal district courts are equally divided. Oddly enough, the Eastern District of Washington has held unequivocally that a law enforcement officer's use of a thermal imaging device does "not constitute a search within the meaning of the Fourth Amendment."¹³⁴ Taking a stance opposite of the *Young* court,¹³⁵ *Domitrovich* stated "the defendant has failed to demonstrate either that the thermal imaging . . . conducted infringed on an actual expectation of privacy, or, that if such an expectation existed, it is one which society is prepared to recognize as reasonable."¹³⁶ District courts in Hawaii,¹³⁷ Pennsylvania,¹³⁸ and Wyoming¹³⁹ have also held that the warrantless use of thermal imaging devices is *not* a search and does not invoke Fourth Amendment protections.

While those courts upholding the lawful use of thermal imaging devices seem to be more numerous, district courts in Texas¹⁴⁰ and

¹³⁰ *Id.*; *State v. Johnson*, 879 P.2d 984, 993 (Wash. Ct. App. 1994) (citing *Young* as authority for the proposition that the use of infrared surveillance on a private dwelling violates the federal constitution and Washington's state constitution), *review denied*, 891 P.2d 38 (Wash. 1995) (Table No. 62257-4).

¹³¹ *Young*, 867 P.2d at 599, 601.

¹³² *State v. Cramer*, 851 P.2d 147, 150 (Ariz. Ct. App. 1992) (holding that thermal imaging did not violate the Fourth Amendment).

¹³³ *See State v. McKee*, 510 N.W.2d 807, 810 (Wis. Ct. App. 1993) (holding that thermal imaging does not violate the Fourth Amendment), *review denied*, 515 N.W.2d 715 (Wis. 1994).

¹³⁴ *United States v. Domitrovich*, 852 F. Supp. 1460, 1475 (E.D. Wash. 1994) (holding that use of thermal imaging device was not a search).

¹³⁵ *State v. Young*, 867 P.2d 593, 601, 604 (Wash. 1994) (holding that the use of infrared surveillance on a private dwelling violates the federal constitution and Washington's state constitution).

¹³⁶ *Domitrovich*, 852 F. Supp. at 1475.

¹³⁷ *United States v. Penny-Feeney*, 773 F. Supp. 220, 228 (D. Haw. 1991) (holding that use of a FLIR device in navigable airspace is not a "search" under the Fourth Amendment), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

¹³⁸ *United States v. Deaner*, 1992 WL 209966, at *4 (M.D. Pa. July 27, 1992), *aff'd*, 1 F.3d 192 (3d Cir. 1993).

¹³⁹ *United States v. Porco*, 842 F. Supp. 1393, 1398 (D. Wyo. 1994).

¹⁴⁰ *United States v. Ishmael*, 843 F. Supp. 205 (E.D. Tex. 1994). In an opinion published after the initial draft of this Note, the Fifth Circuit overruled the District Court's

Wisconsin¹⁴¹ disagree and have held that the use is a search and requires a warrant. The Texas court focused on a statement in *Dow Chemical Co. v. United States* in which the Supreme Court held aerial surveillance did not violate the Fourth Amendment.¹⁴² Nevertheless, the Court went on to say that the use of "highly sophisticated surveillance equipment" on private property might violate the Fourth Amendment if conducted without a warrant.¹⁴³ The Texas court stated that the thermal imaging device was "exactly the type of sophisticated technology that concerned the Supreme Court"¹⁴⁴ in *Dow* and, as such, excepted it from *Dow's* "approval for warrantless searches."¹⁴⁵ In Wisconsin the state and district court holdings are the reverse of the state and district court holdings in Washington — while the state court holds the use of thermal imaging devices not to be a search, the federal district court finds that it is a search.¹⁴⁶ This court adopted the Report of the Magistrate, in which there was a very thorough review and analysis of case law on the issue through May 1994.¹⁴⁷ In the report, the Magistrate analyzed the existing case law¹⁴⁸ and decided that the defense's arguments of an actual, reasonable expectation of privacy were most persuasive, thus deciding the issue was to be guided by the Fourth Amendment.¹⁴⁹

To further demonstrate the courts' indecision, a district court in New York refused to rule on the use of a thermal imaging device.¹⁵⁰ That

decision that the warrantless use of a thermal imager was unconstitutional. *United States v. Ishmael*, 48 F.3d 850, 851 (5th Cir. 1995).

¹⁴¹ *United States v. Field*, 855 F. Supp. 1518, 1519 (W.D. Wis. 1994) (distinguishing heat loss, which is unconscious, from abandoning garbage, which is an affirmative decision).

¹⁴² *Dow Chemical Co. v. United States*, 476 U.S. 227, 228-29 (1986).

¹⁴³ *Id.*

¹⁴⁴ *United States v. Ishmael*, 843 F. Supp. 205, 212 (E.D. Tex. 1994). The appellate court decision disagreed with this view. *United States v. Ishmael*, 48 F.3d 850, 856-57 (5th Cir. 1995).

¹⁴⁵ *Ishmael*, 843 F. Supp. at 212. The *Ishmael* court also did a reasonable expectation of privacy test and found that defendant did have a subjective expectation of privacy and that the expectation was reasonable. *Id.* The appellate court agreed with the Texas District Court on this point. *Ishmael*, 48 F.3d at 854-55.

¹⁴⁶ *United States v. Field*, 855 F. Supp. 1518, 1519 (W.D. Wis. 1994). For an excellent synopsis of court holdings throughout the country on the issue of thermal imaging, see Section I of the Magistrate's Report adopted by the court. *Id.* at 1525-30.

¹⁴⁷ *Id.* at 1518.

¹⁴⁸ *Id.* at 1530-33.

¹⁴⁹ *Id.* at 1533.

¹⁵⁰ *United States v. Casanova*, 835 F. Supp. 702, 708 (N.D.N.Y. 1993) (finding that sufficient information existed independent of infrared tracking to establish probable cause).

court avoided the issue by holding there was sufficient *other* probable cause to support the search warrant.¹⁵¹

Until very recently, the federal courts of appeals also avoided rendering a decision on the issue. A number of cases involved the use of a thermal imaging device, but the defendant failed to contest its use, so the court did not address the issue.¹⁵² In addition, in those cases where the use of a thermal imager was not considered a search at the district court level, the courts of appeals specifically declined to rule on the matter and upheld the cases on other grounds.¹⁵³ Most notable was the Ninth Circuit's decision in *United States v. Feeney*,¹⁵⁴ the appeal of *United States v. Penny-Feeney*.¹⁵⁵ While the prosecution often cites *Penny-Feeney*, the Ninth Circuit, deciding the appeal on all the evidence except the thermal imaging device scan,¹⁵⁶ upheld the validity of the warrant.¹⁵⁷ It explicitly did "not address whether any aspect of [a thermal imager scan] during helicopter surveillance of the Feeneys' home violated the Fourth Amendment's prohibition against unreasonable searches."¹⁵⁸ Such explicit avoidance of the issue by the Ninth Circuit may cast doubt upon the district court holding.

It was not until May 1994 that a court of appeals rendered a decision on the constitutionality of prewarrant use of thermal imaging devices. The Eighth Circuit held, in *United States v. Pinson*,¹⁵⁹ that "[a]ny subjective

¹⁵¹ *Id.* at 705.

¹⁵² *United States v. Zimmer*, 14 F.3d 286, 288 (6th Cir. 1994) (holding that the thermal imager, electric bills, and an officer's visit were sufficient to establish probable cause); *United States v. Thomas*, 9 F.3d 110 (6th Cir. 1993); *United States v. Ramirez*, 993 F.2d 886 (9th Cir. 1993); *United States v. Broussard*, 987 F.2d 215, 222 (5th Cir. 1993) (finding that high electricity use, blackened windows, thermal imaging, and a confidential informant were sufficient for probable cause).

¹⁵³ *United States v. Kyllo*, 37 F.3d 526, 531 (9th Cir. 1994) (remanding to District Court for findings of fact regarding thermal imaging device capabilities); *United States v. Olson*, 21 F.3d 847, 850 (8th Cir.) (finding that an independent investigation by the drug task force was adequate to establish probable cause), *cert. denied*, 115 S. Ct. 230 (1994); *United States v. Deaner*, 1 F.3d 192, 197 (3d Cir. 1993) (finding other evidence to support probable cause); *United States v. Feeney*, 984 F.2d 1053, 1054 (9th Cir. 1993) (finding that independent evidence established probable cause).

¹⁵⁴ 984 F.2d 1053.

¹⁵⁵ *United States v. Penny-Feeney*, 773 F. Supp. 220, 227 (D. Haw. 1991) (finding that the use of "FLIR" does not constitute a search), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

¹⁵⁶ *Feeney*, 984 F.2d at 1055-56.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 1054-55.

¹⁵⁹ *United States v. Pinson*, 24 F.3d 1056, 1059 (8th Cir.) (finding that defendant failed to show that his subjective expectation of privacy is one which society finds objectively reasonable), *cert. denied*, 115 S. Ct. 664 (1994).

expectation of privacy Pinson may have had in the heat radiated from his house is not one that society is prepared to recognize as 'reasonable.'"¹⁶⁰ In September 1994 and in March 1995, the Fifth¹⁶¹ and Eleventh Circuits¹⁶² upheld the arguments of the prosecution point by point in their holdings and found that the use of thermal imaging devices did not constitute "searches" within the meaning of the Fourth Amendment.¹⁶³ The Fifth Circuit applied the *Katz* two-part test and found the Ishmaels did have a subjective expectation of privacy in their heat loss but it was not one society was prepared to view as "reasonable," therefore the use of the device was constitutional.¹⁶⁴ As a result of these recent decisions, it appears that the courts now tend toward allowing the warrantless use of thermal imaging devices.

CONCLUSION

A. Allow the Prewarrant Use of Thermal Imaging Devices

Law enforcement agents should be allowed as much latitude as possible to protect citizens and themselves from criminals; however, their conduct must always pass constitutional scrutiny or society begins moving away from a democracy and toward a police state. The capabilities of advanced technological equipment often dazzle the would-be user; yet, if limitations are not placed on the use of technological weapons, our right to privacy "may be eroded without our awareness, much less our consent."¹⁶⁵ These considerations make the need for a clear decision readily apparent.

The courts do not seem to favor the notion that the use of thermal imaging violates the warrant requirement of the Fourth Amendment. Under the *Katz* two-part reasonable expectation of privacy test, the prosecution's argument is a little more sound. Any expectation of privacy a defendant has in escaping heat is not one society is reasonably prepared to accept. The classification of heat loss as heat waste and the analogy to the view and treatment of garbage are very convincing, particularly in the circumstances where heat is purposely vented.

¹⁶⁰ *Id.* at 1058.

¹⁶¹ *United States v. Ishmael*, 48 F.3d 850 (5th Cir. 1995).

¹⁶² *United States v. Ford*, 34 F.3d 992, 995 n.3 (11th Cir. 1994).

¹⁶³ *Id.* at 996; *Ishmael*, 48 F.3d at 857.

¹⁶⁴ *Ishmael*, 48 F.3d at 856.

¹⁶⁵ *State v. Young*, 867 P.2d 593, 598 (Wash. 1994) (finding that warrantless infrared surveillance violated the federal constitution and Washington's state constitution).

It is reasonable to assume that it is not common knowledge that law enforcement agents may scan a person's house or property to determine the thermal output. It would follow that since such surveillance is not common knowledge, a citizen may expect that such information is private. However, simply because a belief is common does not mean that it is reasonable.

Thermal scans are reasonable because their performance is not overly invasive of one's right to privacy.¹⁶⁶ While thermal imagers can detect a human form when it is leaning against glass or other thin barrier, the "detection" referred to is shown as a gray or light gray distorted form on the imagers view screen which one may determine to be a human figure.¹⁶⁷ While the form is apparent, it is likely to be indistinct. Furthermore, unless a motionless person is actually leaning against or is very near the barrier scanned, then the imager will not detect their presence.¹⁶⁸ The invasion described does not seem to be of a constitutionally prohibitive level.

The prosecution's analogy of heat loss to a "dog sniff"¹⁶⁹ is much less persuasive. Unless such surveillance is performed in a public place where no warrant is necessary,¹⁷⁰ a drug-sniffing dog entering private property to locate contraband requires the authority of a warrant.¹⁷¹ Thermally scanned structures are usually private homes or buildings on private land (i.e., areas generally requiring a warrant for the search to be permissible), thus comparison to a public "dog sniff" is not so very similar that it can be considered applicable.

The defense's "unduly invasive" argument is not convincing given the limitations on the clarity of the images¹⁷² within a structure scanned by a thermal device. Yet, their analogy to limitations on the surveillance of beepers¹⁷³ inside a private structure is relevant and does cause a problem for the prosecution. One possible distinction, in favor of the prosecution, may be that the beeper monitored in the defense argument was *unknowingly* carried into the home by defendant, whereas, heat is

¹⁶⁶ See *supra* note 55 and accompanying text.

¹⁶⁷ *Young*, 867 P.2d at 595.

¹⁶⁸ See *supra* notes 54-56 and accompanying text.

¹⁶⁹ See *supra* notes 111-12 and accompanying text.

¹⁷⁰ *United States v. Place*, 462 U.S. 696 (1983) (holding that using drug sniffing dogs at an airport is not a search under the Fourth Amendment).

¹⁷¹ *Young*, 867 P.2d at 603-04 (citing *United States v. Thomas*, 757 F.2d 1359 (2d Cir.), *certs. denied*, 474 U.S. 819 (1985) and 479 U.S. 818 (1986)).

¹⁷² See *supra* note 167 and accompanying text.

¹⁷³ See *supra* notes 123-25 and accompanying text.

knowingly created and in most indoor marijuana growing operations is knowingly vented outside the structure. Overall, the analysis of a *Katz* test favors the prewarrant use of thermal imaging devices.

Another point to consider in analyzing this issue is the type of protection which would be provided by requiring a warrant prior to the use of a thermal imager. The purpose of a law enforcement agent's use of the thermal imaging device is to provide support, in addition to evidence already obtained, for probable cause in the affidavit and application for a search warrant. Since the scan only reveals heat emanations and the source of the heat emanation is as likely to be from a legal use as an illegal one, a thermal imaging scan alone would not provide sufficient probable cause for a search. Further, probable cause is said to be shown through a consideration of the totality of circumstances, not just from review of a single factor.¹⁷⁴

Persons opposed to the use of thermal imagers argue for a warrant requirement prior to its use. In order for law enforcement to obtain a warrant, they would have to establish probable cause for its necessity. To require a warrant (i.e., probable cause) to use a device whose information will be used to supplement probable cause for a search warrant would render use of thermal imaging devices useless. If probable cause could be shown, law enforcement officers would not need the thermal scan and they would go ahead and obtain a search warrant.

Furthermore, having a warrant requirement begs the question of what standard of review the courts should apply in granting a warrant for use of a thermal imaging device. Should it be probable cause? Or, should it be some lower standard such as reasonable suspicion? Or instead of a warrant, should the requirement be one of a court order, such as those necessary for the use of pen registers?¹⁷⁵ The use of a pen register without a *warrant* does not violate Fourth Amendment rights because the acquired information is not a communication, nor has there been a place searched or thing seized.¹⁷⁶ Rather, a pen register merely monitors and records telephone numbers dialed on the phone upon which the device is attached.¹⁷⁷ Law enforcement agents can use a pen register by obtaining

¹⁷⁴ See *United States v. Penny-Feeney*, 773 F. Supp. 220, 229 (D. Haw. 1991) (pointing out that its the consideration of all "detailed interlocking information" that shows substantial basis for probable cause, not one single bit piece information), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

¹⁷⁵ 18 U.S.C. § 3121.

¹⁷⁶ *Smith v. Maryland*, 442 U.S. 735, 741 (1979).

¹⁷⁷ 18 U.S.C. § 3127(3); see also *Smith*, 442 U.S. at 736 n.1 (citing *United States v. New York Tel. Co.*, 434 U.S. 159, 161 n.1 (1977)).

a court order which requires less than probable cause for its issuance.¹⁷⁸ A court order requires that law enforcement agents contact the prosecutor and support their need for the item.¹⁷⁹ The prosecutor, in turn, must explain the necessity to a magistrate or judge to obtain the order and certify that "the information likely to be obtained is relevant to an ongoing criminal investigation. . . ."¹⁸⁰ If such a requirement were imposed upon the use of a thermal imager, there would be greater protection of Fourth Amendment rights since a prosecuting attorney must be consulted for legal advice beforehand. In addition, a magistrate's unbiased review of the need for the device's use would create a record for review in a constitutional challenge.

B. Summary

The use of thermal technology as a tool for law enforcement officials is clearly a new and evolving issue for the courts. The existing case law on the subject only dates back to the 1991 case of *United States v. Penny-Feeney*.¹⁸¹ Since that time, the courts' holdings have vacillated. Currently, the federal courts of appeals favor thermal imaging and do not consider it a search within the meaning of the Fourth Amendment; however, only three of the twelve circuits have ruled on the matter.¹⁸² Tomorrow could bring another circuit holding that opposes the Fifth, Eighth and Eleventh Circuits' position.

Plainly, the constitutional question regarding the prewarrant use of the device has not been definitively answered. As a result, law enforcement officers are unclear as to what procedures are legally possible. This is something for the Supreme Court to consider if, and when, they review the issue. Law enforcement agencies throughout the country deserve clear directions on constitutional issues and to know what tools are and are not available to them in the execution of their duties. They should not have to be concerned with intracircuit conflicts and how other jurisdictions

¹⁷⁸ 18 U.S.C. §§ 3122-3123.

¹⁷⁹ *Id.* § 3122(a).

¹⁸⁰ *Id.* § 3122(b).

¹⁸¹ *United States v. Penny-Feeney*, 773 F. Supp. 220 (D. Haw. 1991); *supra* note 155.

¹⁸² *United States v. Ishmael*, 48 F.3d 850 (5th Cir. 1995) (holding that warrantless use of thermal imager did not violate the Fourth Amendment); *United States v. Ford*, 34 F.3d 992 (11th Cir. 1994) (holding that a subjective expectation of privacy, which the defendant may have had, was not reasonable); *United States v. Pinson*, 24 F.3d 1056, 1059 (8th Cir.), *cert. denied*, 115 S. Ct. 664 (1994) (holding that defendant failed to show that his expectation of privacy is one which society finds objectively reasonable).

addressing the matter may influence decisions within their own jurisdiction. There needs to be a clear-cut resolution concerning the permissible use of thermal imaging devices without a warrant.

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